

# Another year in spectrum management at NRAO

Harvey Liszt

NRAO, CHARLOTTESVILLE

# The mundane

- Four FCC filings last spring/summer
  - UWB 77-81GHz tank-level penetrating radar
  - Ku-band uplinks on trucks and buses (VMES)
  - 57-64 GHz service links
  - Part 90 rules for fixed PHS stations in the 4940-4990 band
  - One fell prey to turbulence in the staffing of the director's office ...

# The mundane

- Still dickering with WMTS over use of 611 MHz equipment in 5 hospitals in Grand Rapids, IA
- 5 hospitals, test results show they vary widely in path loss
- NRAO only concerned with aggregate, WMTS asking permission one by one
- WMTS has not responded since last September

# The mundane

- We've been way too passive in spectrum monitoring, hope to do more this year, especially near the 1612 MHz OH band (MSS operators + GLONASS RNSS)
- Monitoring the DTV transition

# NRAO physical assets

- Two big assets are the National Radio Quiet Zone and relative isolation of the VLA site.
  - NRQZ allows observations in the rest of the world's 800 MHz cell phone band & is a role model for the rest of the world's QZ plans
  - VLA exists on the sufferance of the outside world, in 1972 Dave Heeschen went to the White House + promised to be a “good neighbor” to White Sands Missile Range

# National Infrastructure

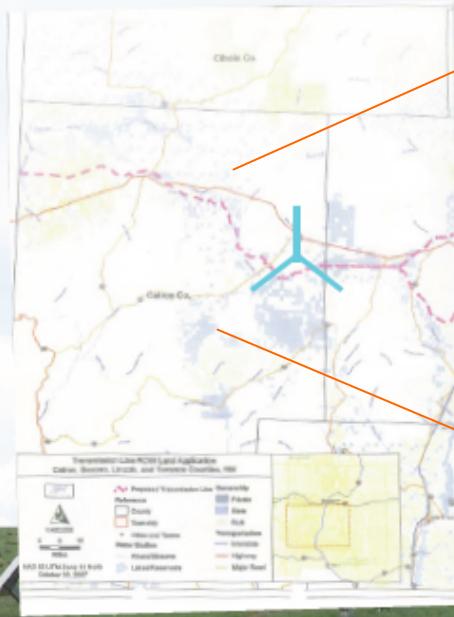
- Wind farms, mining, power lines

See Greg Taylor's LWA talk at

<http://www.nrao.edu/2008Retreat/agenda.shtml>

## External Threats (mostly RFI)

- Preliminary investigation into Broadcast internet over power lines (BPL)
- Proposal to mine water on the Plains
  - 500+ objections (including ours)
  - 3/26 letter from State Engineer
- Proposal to place a power line across the Plains
  - Objection filed with State Land Office



# Broadband over Power Lines

- BPL falling behind as commercial broadband competitor
  - At end of 2006, US had total of **4800** BPL subscribers according to FCC reportage
- Will be reborn as a network-monitoring, meter-reading service
  - Dallas, TX electric utility recently paid \$80,000,000 for local BPL infrastructure
  - If not BPL, then *via* wireless

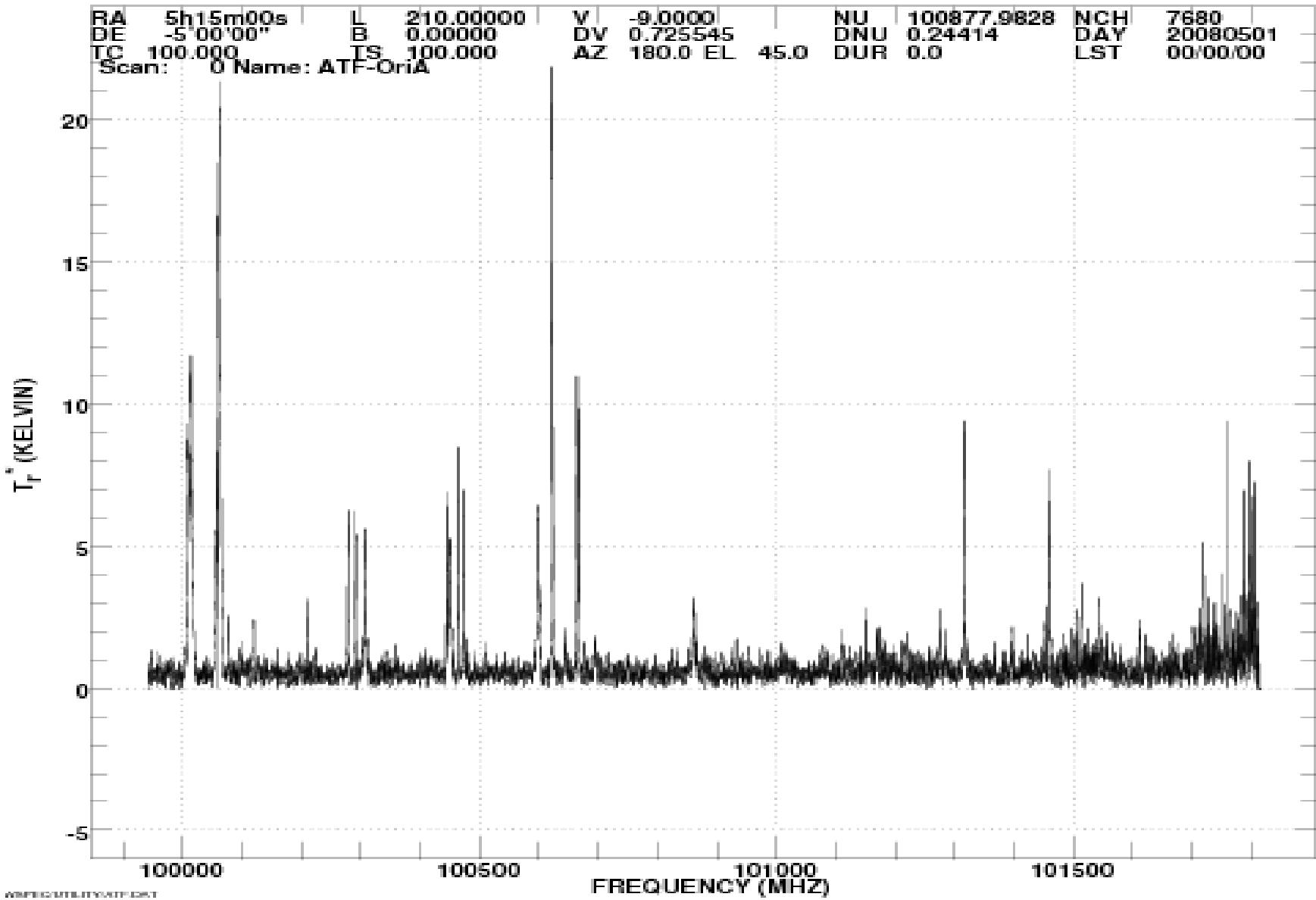
# Broadband over Power Lines

- This will be an interesting year, because of the court order requiring the FCC to reconsider its BPL testing procedures
  - 40 dB/octave distance falloff?
  - Will NRAO file ...?
- In-home BPL may also thrive as a niche market.

# Border fence

- May not be subject to normal restrictions vis-à-vis environmental impact usw.

# In opportunity lies danger



ATRIG/ATRIG/ATRIG

# In opportunity lies danger

- VLA, GBT, ALMA all have receivers with multi-GHz RF bandwidth and, soon, multi-GHz-wide correlators
- More and more of these “GHz” will have signals capable of disabling a detector when in the main beam (SAR 9300–9900 MHz)
- Some cannot be easily avoided by consulting an ephemeris because their beams move independently (ditto)

# Continued involvement with SM

- Tightening of the NRAO operations budget will cause contraction in involvement on the part of the Spectrum Manager, whose major functional responsibilities will shift to ALMA commissioning.